

Synthesis of SBA-15 as a catalyst for hydrolysis of cellulose and performance evaluation

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Biomass is widely recognized as substitute energy for petroleum because of the readily available and renewable properties. Cellulose occupied most of the biomass is indigestible for humans and well-timbered. Thus, Catalysts for hydrolysis of cellulose to glucoes have been researching. To increase yield of hydrolysis, SBA-15-SO₃H, which is sulfonated mesoporous silica, Al-SBA-15-SO₃H and large pore Al-SBA-15-SO₃H as catalysts for conversion of cellulose were synthesized. The characterization of catalysts was performed using transmission electron microscopy(TEM), nitrogen sorption, and Inductively coupled plasma atomic emission spectroscopy(ICP-ACS). The hydrolysis of ball milled cellulose into glucose was conducted in an autoclave with each catalyst and then yields were analyzed by high performance liquid chromatography(HPLC) to evaluate the catalysts.